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ABSTRACT

In forecasting its fall credit headcounts, the Office of Institutional Research and Analysis at Prince George's Community College (PGCC) utilizes the Component Yield Method (CYM), an enrollment projection model developed by the college's planning analyst in the early 1980's. By disaggregating enrolled students into multiple groups, each with an independently calculable enrollment forecast, a greater degree of accuracy is permitted in headcount forecasts as changes in any component can be factored separately into total retention figures. The following seven yield rates are used to forecast fall credit headcounts: (1) retention rate from prior spring; (2) enrollment rate of new graduates of county high schools; (3) percentage of county high school students concurrently enrolling at PGCC; (4) enrollment rate of county residents other than current year high school graduates; (5) enrollment rate of residents of neighboring jurisdictions; (6) PGCC readmission rate; and (7) rate of transfer from other institutions. A baseline or "stable rates" forecast is made each year using yield rates based on the previous 3 years. With an assumption that all yield rates will remain unchanged from those realized in fall 1988, the CYM forecasts fall 1989 credit headcount of 13,831, nearly a 3% increase from fall 1988. Projected fall 1990 headcount is 13,988. An alternate headcount projection, seeking to account for unusually high expected transfers and readmissions, was obtained by using 1986-88 "stable-rates" averages. Examples of how the CYM operates when there are variations in specific yield rate categories, and data tables are included. (GFW)

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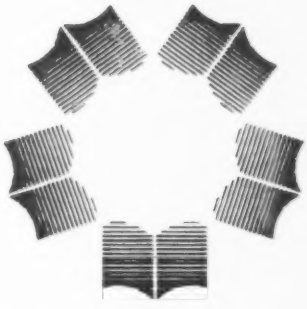
CREDIT HEADCOUNT FORECASTS FOR FALL 1989-90

Component Yield Method Projections

Craig A. Clagett



PRINCE GEORGE'S
COMMUNITY COLLEGE

Planning Brief PB90-3

prepared by the

Office of Institutional Research and Analysis

August 1989

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PRINCE GEORGE'S COMMUNITY COLLEGE
Office of Institutional Research and Analysis

CREDIT HEADCOUNT FORECASTS FOR FALL 1989-90
Planning Brief PB90-3
August 1989

Overview

This planning brief presents the latest set of fall credit headcount forecasts based on the Component Yield Method developed in the early 1980s. After a brief description of the method and its performance in recent years, alternative forecasts for each component for fall 1989 and fall 1990 are presented. These are not predictions; they reflect what would occur if past relationships persist unchanged and environmental circumstances unfold as expected. Actual enrollment will differ from these forecasts because yield rates will change (for example, the percentage of County high school graduates entering PGCC may rise or decline, or our spring-to-fall retention rate may change) or because the population component projections (to which the yield rates are applied) may be inaccurate. With these caveats, however, this method continues to be used--in conjunction with others--because it has been a useful planning and analytical tool in the past. The method forecasts fall 1989 headcount of 13,831 if fall 1988 rates are assumed, and 12,587 if the rates based on the prior three years are used (for all components except readmits and transfers to PGCC, which exclude fall 1988 because they were unusually high last year).

Projecting Enrollment from Population Components

The college's degree-credit student body is composed of several components that vary in their contribution to total enrollment. In most semesters, the largest component consists of students continuing their studies from the prior term. Students not continuing from the previous semester can be divided into students attending college for the first time, students readmitted to PGCC, and transfers from other colleges and universities. First-time students can be further disaggregated into County residents and non-residents, with each of these categories further subdivided: County residents into students from various high school sources plus older entrants, and non-County residents by geographic origin. Historical enrollment data can be applied to information concerning the size of the target populations from which each component is drawn to establish annual enrollment rates for each segment. Applying these enrollment or yield rates to projections for each segment produces forecasted enrollment from each source. This framework of projections from population components permits a range of forecasts by varying the assumed yield rates based on knowledge of changes in the environment or administrative judgment. The

framework requires specification of the following yield rates in order to forecast fall credit headcount:

1. Retention rate from prior spring.
2. Enrollment rate of new graduates of County public and private high schools.
3. Percentage of County high school students enrolling concurrently at PGCC.
4. Enrollment rate of County residents other than current year high school graduates.
5. Enrollment rate of residents of neighboring jurisdictions.
6. Rate of readmission to PGCC.
7. Rate of transfer from other institutions to PGCC.

In addition, the number of students from outside Maryland (including foreign students) must be estimated. Unlike pattern-based, curve-fitting models that attempt to mathematically identify an underlying pattern in historical data so as to extrapolate it into the future to make projections, the Component Yield Method forces the analyst to specify numerous yield rates and thus make explicit his or her assumptions about retention, student recruitment success, and other factors impacting on enrollment. The method encourages the generation of alternative forecasts based on "what-if" speculation or informed judgment. (What would our fall headcount forecast be if we increased our enrollment of current-year County high school graduates from 18 to 20 percent? What would be the impact on enrollment if we increased our spring-to-fall retention rate from 54 percent to 56 percent?) By making such assumptions explicit, the method emphasizes that we cannot predict the future but only make informed forecasts.

The college's planning analyst developed the Component Yield Method in the early 1980s. One "baseline" forecast made each year uses yield rates based on the prior three years. This "stable rates" forecast has been a useful benchmark for planning and analysis:

Comparison of Actual Fall Credit Headcount with Component Yield Method Forecasts, Fall 1983-88 Stable Yield Rates Forecasts

Fall	Stable Rates CYM Forecast	Actual Headcount	Actual/ Forecast
1983	15,176	14,977	0.987
1984	14,038	14,083	1.003
1985	13,123	12,781	0.974
1986	12,275	12,435	1.013
1987	12,139	12,882	1.061
1988	12,543	13,443	1.072

These projections have answered the question, "If our component yield rates remain stable, what will be our enrollment next fall?" Thus these forecasts have reflected projected changes in the component populations, not changes in the college's success in attracting students from them. In addition to providing a useful set of projections, these stable-rate forecasts aid in analysis. Deviations from projections typically pinpoint components where the college's enrollment rate has changed. After four years of forecasting fall headcount within three percent, the Component Yield Method stable-rates forecast substantially underestimated actual fall enrollment the last two years. In 1987, the college's spring-to-fall retention rate was 53 percent, nearly 3 percentage points above its 1984-86 average. The yield rate from County high schools also increased. These two factors largely accounted for the higher enrollment realized. Last year, record-high transfers from other colleges and readmissions to PGCC yielded enrollment seven percent above the stable-rates forecast. The first-time student projection missed by only 14 students!

Component Yield Method Forecasts for Fall 1989-90

With an assumption that all yield rates will remain unchanged from those realized in fall 1988, the Component Yield Method forecasts fall 1989 credit headcount of 13,831, nearly a three percent increase from fall 1988. The largest forecasted increase is in continuing students, reflecting the larger spring enrollment base (spring 1989 enrollment exceeded spring 1988 by 529 students) and the record high 1988 spring-to-fall retention rate of nearly 54 percent. The number of students transferring to PGCC from other colleges is also expected to increase, reflecting past increases in enrollment statewide at the undergraduate level. The CYM forecast based on last fall's yield rates is as follows for fall 1989 and fall 1990:

Actual and Projected Headcount, Fall 1988-90
Component Yield Method, Assuming Fall 1988 Yield Rates

	Actual Fall 1988	Projected Fall 1989	Projected Fall 1990
Continuing from prior spring	6,150	6,436	6,615
First-time college students	3,206	3,198	3,052
Readmitted to PGCC	2,471	2,492	2,528
Transfers from other colleges	1,616	1,705	1,793
Total credit headcount	13,443	13,831	13,988

Fall 1988 was unusual in the number of students transferring to PGCC from other colleges, and in the rate of readmissions. New transfers were up nearly 39 percent from the year before. Analysis revealed that a fifth of the new transfers in fall 1988 had attended another college in 1988; the remaining four-fifths had skipped at least one regular semester before entering PGCC. Half had been out of college for at least four years. A fifth had been out at least ten years. The fall 1988 transfers to PGCC had attended over 500 different colleges and universities, in 47 states and 24 foreign countries. Most, however, had attended a college in Maryland or the District of Columbia. (See OIRA Report EA89-4 for details.) Fall 1988 also had 215 more readmits than the year before. Were these high rates of transfer and readmission an aberration, or can we expect them to continue? Answering these questions is beyond the capabilities of this method. However, we can make various assumptions and see what enrollment forecasts result. Rather than using the yield rates realized in fall 1988, another set of forecasts was produced using rates based on 1986-88 averages (the "stable-rates" forecast) but not including the atypically high fall 1988 transfer and readmission rates. This set of forecasts assumes that fall 1988's high number of transfers to PGCC and readmissions was a one-time phenomenon. Rather than an increase in headcount enrollment, these assumptions produce a forecasted decline:

Actual and Projected Headcount, Fall 1988-90
Component Yield Method, Modified Stable Rates*

	Actual Fall 1988	Projected Fall 1989	Projected Fall 1990
Continuing from prior spring	6,150	6,239	5,905
First-time college students	3,206	3,141	3,002
Readmitted to PGCC	2,471	2,010	2,042
Transfers from other colleges	1,616	1,197	1,258
Total credit headcount	13,443	12,587	12,207

*Rates based on prior three years except for readmission and transfer rates, which were based on fall 1986 and 1987 only

One of the strengths of the Component Yield Method is the ability to specify different yield rates for the various components to determine the impact on the overall forecast. This facilitates "what-if" speculations and can be used to generate a "best guess" estimate based on informed administrative judgment. To illustrate, six forecasts were generated using the two

baseline projections above and new assumptions concerning high school enrollment and PGCC retention rates:

Component Yield Method Forecasts for Fall 1989

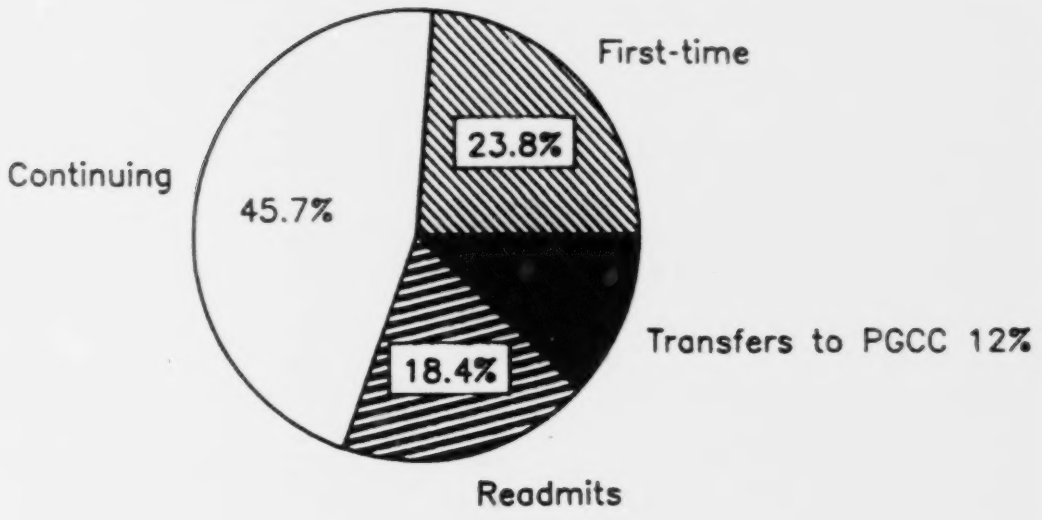
	Fall 1988 Yield Rates	Modified Stable Rates Forecast
Base projection	13,831	12,587
What if		
Public high school enrollment rate increases to 20 percent:	13,945	12,800
Spring-to-fall retention rate increases to 55 percent:	13,953	12,906
Public high school rate is 20 percent and spring-to-fall retention rate is 55 percent:	14,067	13,119

The combination of continuation of last fall's high transfer and readmission rates, plus a return to the record high 20 percent high school enrollment rate (last achieved in fall 1982) and achievement of an all-time high spring-to-fall retention rate of 55 percent would produce fall 1989 headcount of 14,067--a 4.6 percent increase from last year. This might be considered the optimistic or high forecast. The pessimistic or low forecast might be the modified stable-rates base projection of 12,587. Of course, any number of alternative forecasts can be made by varying one or more of the seven sets of assumed rates.

Craig A. Clagett
Director
Institutional Research and Analysis

COMPONENTS OF ENROLLMENT

Fall 1988



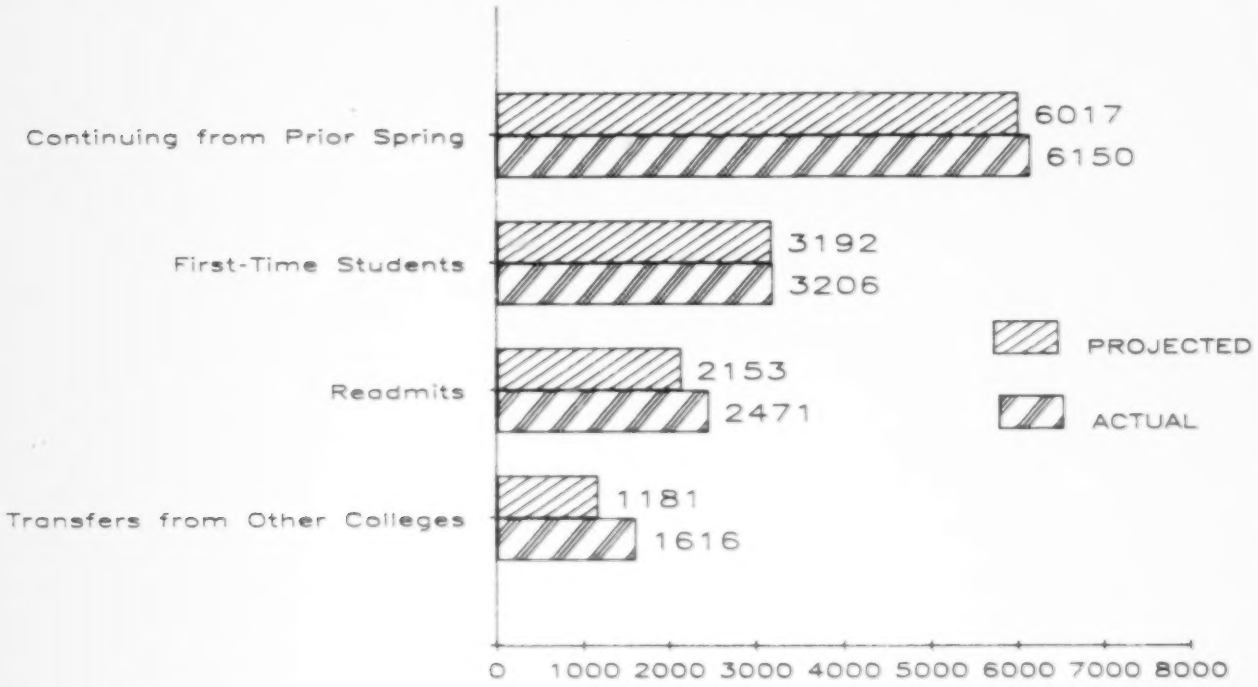
N = 13,443

Components of Enrollment, Fall 1985 - 1988

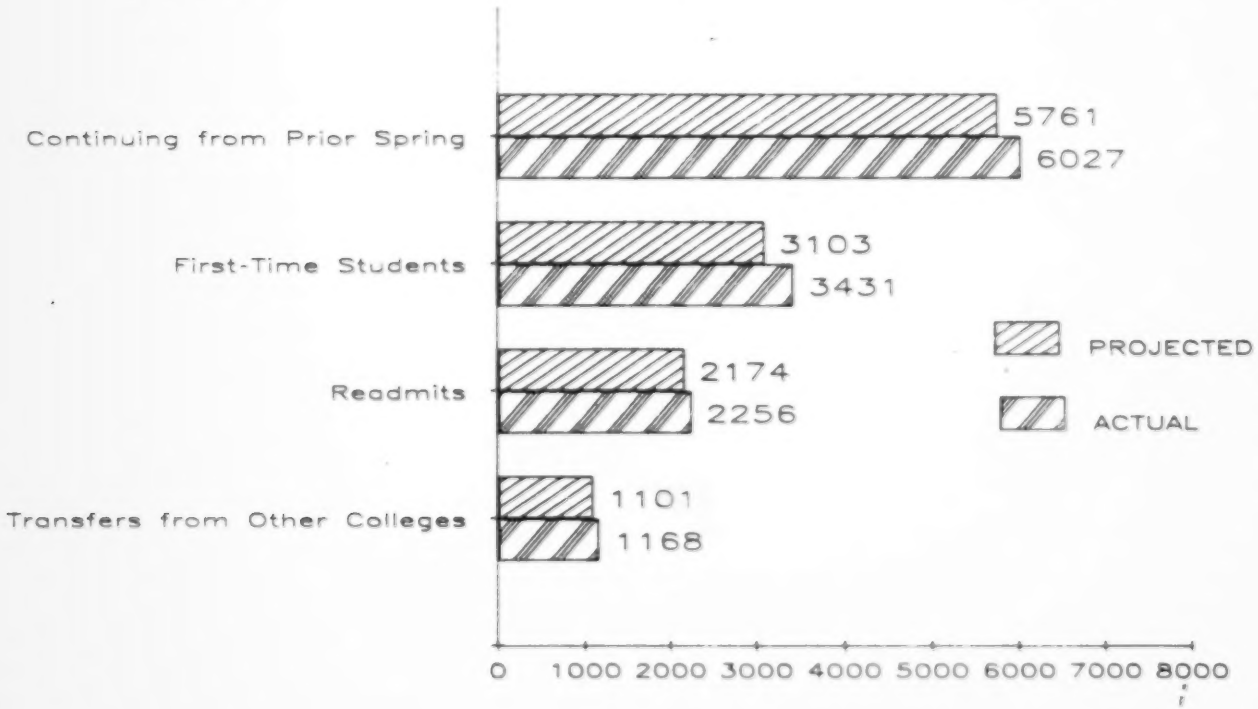
Fall	First-time Any College	New Transfers From Other Colleges	Readmitted to PGCC	Continuing from Prior Spring	Total Headcount
1988	3,206	1,616	2,471	6,150	13,443
1987	3,431	1,168	2,256	6,027	12,882
1986	3,136	1,136	2,250	5,913	12,435
1985	3,177	1,043	2,312	6,249	12,781

SOURCE: Information Systems third week enrollment reports. Students entering or readmitted during preceding summer sessions included in each category as appropriate.

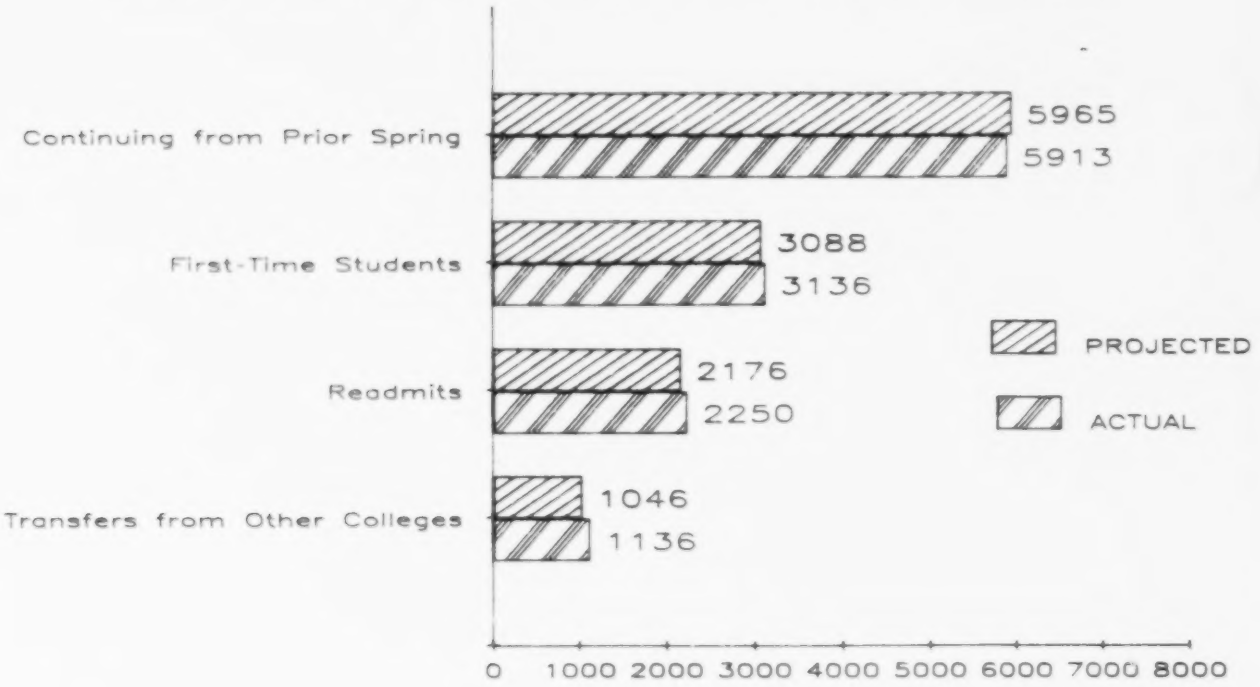
ACTUAL AND PROJECTED HEADCOUNT
FALL 1988
COMPONENT YIELD METHOD, STABLE RATES FORECAST



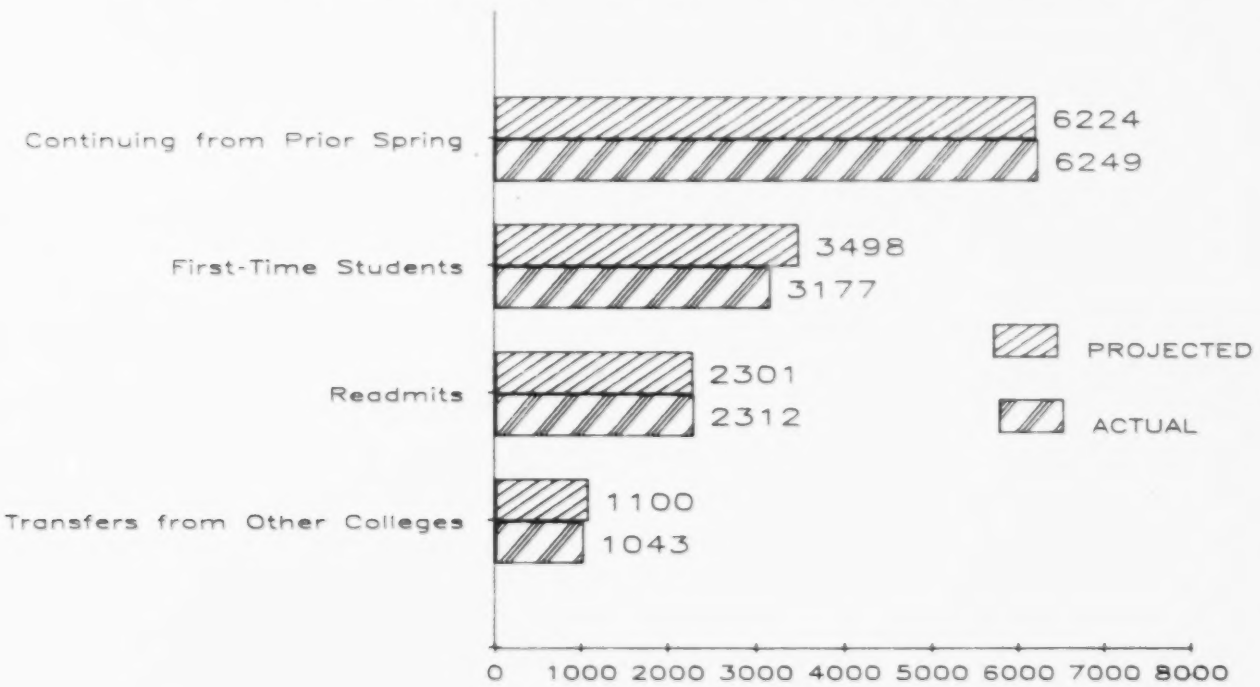
ACTUAL AND PROJECTED HEADCOUNT
FALL 1987
COMPONENT YIELD METHOD, STABLE RATES FORECAST



ACTUAL AND PROJECTED HEADCOUNT
FALL 1986
COMPONENT YIELD METHOD, STABLE RATES FORECAST



ACTUAL AND PROJECTED HEADCOUNT
FALL 1985
COMPONENT YIELD METHOD, STABLE RATES FORECAST



PRINCE GEORGE'S COMMUNITY COLLEGE

Actual and Projected Fall Credit Headcount,
Component Yield Method, Fall 1988-90
(Assuming Yield Rates Unchanged from Fall 1988)

	Actual Fall 1988	Projected Fall 1989	Projected Fall 1990
Total degree-credit students	13,443	13,831	13,988
Continuing from prior spring	6,150	6,436	6,615
First-time students	3,206	3,198	3,052
P.G. County residents	3,065	3,051	2,914
High school sources	1,672	1,628	1,485
Direct from P.G. public	1,347	1,319	1,202
Direct from county private	204	199	181
Concurrently enrolled	121	110	102
Older county residents	1,393	1,423	1,429
Non-county residents	141	147	138
Other Maryland counties	85	91	82
Calvert	52	54	49
Anne Arundel	12	13	11
Charles	10	14	13
Montgomery	5	5	4
All others	6	5	5
Out of state	39	39	39
Foreign students	17	17	17
Readmits	2,471	2,492	2,528
Transfers from other colleges	1,616	1,705	1,793

NOTE: First-time, readmit, and transfer totals include students entering PGCC the preceding summer. The above forecasts use fall 1988 yield rates, which were unusually high for readmissions and transfers.

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